

REMARKS

Favorable reconsideration of this application, in light of the following discussion, is respectfully requested.

Claims 1-40 are currently pending. No claims have been amended herewith.

In the outstanding Office Action, Claims 1-3, 5, 11-13, 15, 21-23, 25, 31-33, and 35 were rejected under 35 U.S.C. § 102(b) as being anticipated by Japanese Patent No. JP 362126668A to Hiramoto et al. (hereinafter “the ‘668 patent”); Claims 4, 14, 24, and 34 were rejected under 35 U.S.C. § 103(a) as being unpatentable over the ‘668 patent in view of U.S. Patent No. 6,291,865 to Lee (hereinafter “the ‘865 patent”); and Claims 6-10, 16-20, 26-30, and 36-40 were rejected under 35 U.S.C. § 103(a) as being unpatentable over the ‘668 patent in view of U.S. Patent No. 6,262,439 to Takeuchi et al. (hereinafter “the ‘439 patent”).¹

Claim 1 is directed to a power semiconductor device, comprising: (1) a base layer of a first conductivity type; (2) a base layer of a second conductivity type selectively formed on one surface of the base layer of the first conductivity type; (3) an emitter layer of the first conductivity type selectively formed on the surface of the base layer of the second conductivity type; (4) a collector layer selectively formed on one of the one surface and another surface of the base layer of the first conductivity type; (5) a first main electrode formed on the collector layer; (6) a second main electrode formed on the emitter layer and on the base layer of the second conductivity type; (7) *a gate insulating film formed on a surface of the base layer of the second conductivity type that lies between the emitter layer and the base layer of the first conductivity type, the gate insulating film including the first insulating portion and a second insulating portion*; and (8) a gate electrode formed above the first and

¹ Applicants note that Claim 9, which depends from Claim 4, was not rejected over a combination of references that includes the ‘865 patent, which was applied in the rejection of Claim 4. Moreover, in the rejection of Claim 9, the Office Action fails to make clear whether the limitations recited in Claim 4 are also taught by the ‘439 patent.

second insulating portions, wherein a capacitance of a capacitor formed of the first insulating portion is smaller than a capacitance of a capacitor formed of the first insulating portion.

The ‘668 patent is directed to a semiconductor device having a thin oxide film layer 3 that is formed on a second conductivity type (p-type) base region located beneath a gate electrode. Further, the ‘668 patent discloses a thick oxide film layer 300 that is formed on a region 11 between the second conductivity type (p-type) base regions and located beneath a gate electrode. However, Applicants respectfully submit that the ‘668 patent fails to disclose a gate insulating film formed on a surface of a base layer of a second conductivity type that lies between an emitter layer and the base layer of the first conductivity type, wherein the gate insulating film includes a first insulating portion and a second insulating portion and the capacitance of the second insulating portion is smaller than the capacitance of the first insulating portion, as recited in Claim 1. Rather, the ‘668 patent merely discloses a thin oxide film layer 3 formed on a second conductivity type base region and located beneath a gate electrode. Accordingly, Applicants respectfully traverse the rejection of Claim 1 (and dependent Claims 2, 3, and 5) as anticipated by the ‘668 patent.

Independent Claims 11, 21, and 31 recite limitations analogous to the limitations recited in Claim 1. Accordingly, for the reasons stated above for the patentability of Claim 1, Applicants respectfully submit that Claim 11 (and dependent Claims 12, 13, and 15), Claim 21 (and dependent Claims 22, 23, and 25), and Claim 31 (and dependent Claims 32, 33, and 35) patentably define over the ‘668 patent.

Regarding the rejection of the remaining dependent claims under 35 U.S.C. § 103, Applicants respectfully submit that the ‘865 and ‘439 patents fail to remedy the deficiencies of the ‘668 patent with respect to the gate insulating film, as discussed above. Accordingly, Applicants respectfully submit that a *prima facie* case of obviousness has not been

established and that the rejections of Claims 4, 6-10, 14, 16-20, 24, 26-30, 34, and 36-40 should be withdrawn.

Thus, it is respectfully submitted that independent Claims 1, 11, 21, and 31 (and all associated dependent claims) patentably define over any proper combination of the '668, '865, and '439 patents.

Consequently, in light of the above discussion, the outstanding grounds for rejection are believed to have been overcome. The present application is believed to be in condition for formal allowance. An early and favorable action to that effect is respectfully requested.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.

Kurt M. Berger

Eckhard H. Kuesters
Attorney of Record
Registration No. 28,870
Kurt M. Berger, Ph.D.
Registration No. 51,461

Customer Number
22850

Tel: (703) 413-3000
Fax: (703) 413 -2220
(OSMMN 08/03)
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